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10/590,893	08/28/2006	Paul Gothard Knutson	PU030237	3761

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EXAMINER
JAMAL, ALEXANDER

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2614	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>19 February 2009</u>.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☐ Claim(s) _____ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-27</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   Based upon the submitted amendment, the examiner notes that no claims have been

amended, only arguments submitted.

2.   The examiner maintains the previous set of rejections and submits an additional set of

rejections.

Claim Rejections - 35 USC § 112

1.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making
> and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it
> pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode
> contemplated by the inventor of carrying out his invention.

2.   **Claims 1-27** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with

the enablement requirement. The claim(s) contains subject matter which was not described in

the specification in such a way as to enable one skilled in the art to which it pertains, or with

which it is most nearly connected, to make and/or use the invention.

        The claims recite an entertainment (non-training) audio signal sampled at a higher

sampling rate than the first sampling rate of the input microphone. Applicant's specification

does not disclose any means or relationships between sampling rate of the incoming microphone

signal (telecommunications signal) and the 'higher sampling rate' of the non-training audio signal. Applicant does not show a sampling stage in any of the submitted figures. Additionally it is not clear how the 'non-training' signal is presented to the user if it is not converted to an analog signal to be driven out of the speaker (in order to perform the claimed 'training function'. Applicant's specification does not specify if/when/where the signal is converted to analog. Is applicant claiming an 'entertainment audio signal' that is transmitted out to though the speaker in digital form? That does not make sense as that would not be a very 'entertaining' signal. The examiner contends that applicant's specification does not provide enough information for one skilled in the art to discern how the 'entertainment signal' is actually used to train the canceller. Is it converted to analog/ left in digital? For the purpose of examination, the examiner assumes the claims are referring to the inherent step of matching the sampling rates of the training-signal (entertainment signal) with the signal-to-be-modified-via-the-training signal (the telecommunications signal input from the mic) for the inherent purpose of aligning up the samples so that accurate adaptations can be made.

The phrase delay matching buffer' is used in the claims. As per applicant's submitted remarks (page 10), the applicant has traversed the examiner's contention that using delay buffers to synchronize a system is not well known and obvious in the art. As such the examiner makes an enablement rejection to applicant's claims that recite the delay matching buffers as applicant's specification does not provide enough information for one skilled in the art to ascertain the desired delay and further how to compensate for said delay. How is one to determine the delay when applicant has not disclosed all functional blocks of the interface? Further, applicant has

not provided any sampling rates or relative timings of time-diagrams or any clocking stage

details? What is the master clock run at? How does the buffer compensate for master clock

jitter? What is each processing stage clocked at? Applicant's specification does not give any

circuit /signal specific implementation from which to glean exactly how the delay buffer

operates. For the purpose of examination, the examiner assumes (as previously assumed) that

synchronizing the processing stages of a device using delay buffers is an inherent step in **any**

digital bidirectional communications device used for performing 'real-time' communication

(telecommunications). Further it is well known and obvious that the delay buffer stages could be

implemented anywhere along feedback/transmission path as a matter of design choice.

        As per **claims 1,6,7,8,27,** the examiner notes that applicant has refuted the examiner's

contention.that it is well known and obvious to manage resources. Based on applicant's

arguments (remarks page 13), the examiner notes that applicant has not provided any specific

details as to how the system would monitor the total load on the processor (or even every process

handled by said processor) Further the applicant has not providing any timing diagrams or

algorithms by which the processor determines the 'average load'.

        Furthermore, the examiner notes that it is not disclosed how the claimed inhibiting of the

adaptive filter/ audio training application is performed in view of the well known function of a

double-talk detector, which also limits the filter adaptation.

1.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

    The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
    subject matter which the applicant regards as his invention.

2.   **Claims 1-27,** rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention.

        The claims use the phrase 'entertainment' to describe an application, and a sound

    adaptor. It is not clear what specifically defines an 'entertainment sound adaptor' or an

    'entertainment application'. Applicant's specification does not clearly define the phrases.

    For the purpose of examination, the examiner assumes that any type of audio signal or

    audio signal processing means (application/sound adaptor) may be considered

    'entertainment'.

        As per **claims 6-8,27,** it is not clear what 'minimizing' the use of a processor

    would entail. Since applicant's spec does not provide and specific implementation

    details, it is not possible to discern what load would be considered 'minimized'. Further ,

    it is not clear what an 'average load' for a given processor would be considered to be.

    Again, applicant's specification is very sparse when it comes to actual implementation

    details. Which is why the examiner read these items as obvious in the prior office action.

For the purpose of examination, the examiner assumes the above items are well known and obvious steps to take when designing any processor based system.

Clarification/correction is requested.

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2.   **Claims 1-4,9-15,20-22,27** rejected under 35 U.S.C. 103(a) as being anticipated by Nyhart et al. (5553137).

As per **claims 1,12,** Nyhart discloses an acoustic echo canceller (Col 1 lines 21-40) that trains on 'non-training' audio. The system inherently comprises an A/D sampler to sample the incoming microphone signal because the system is digital. However, Nyhart does not specify the sampling rate of the audio signal in relation to the audio of the telephone functions

The examiner contends that it would have been obvious to one of ordinary skill in the art that any number of signaling frequencies could have been chosen for the telephone

and audio signal used for training, or realize that the training could occur at a different

clock rate than telephone signaling as a matter of design choice.

As per **claim 10,** it is rejected as per **claim 1,** Nyhart discloses that the dialing

tones (preset signals that are used to notify of an event unrelated to training that are also

used for training) (Col 1 lines 45-60).

As per **claims 2,13,** they are rejected as per claim 1.

As per **claims 3,11,14,22,** it may be audio.

As per **claims 4,15,** examiner reads any device that processes audio with acoustic

echoes as a computer, portable computer, and a phone.

As per **claims 9,20,** the examiner contends that any initialization stage for a

communications device would inherently comprise and indication to the training portion

as to when to start (a number of training calls being reached) for the purpose of telling the

training when to start. Additionally the examiner contends that once the echo has been

reduced to an acceptable threshold, the system inherently comprises a counter (clocking)

in order to signal the rest of the system that the training has been completed. This

counter would be adaptive, since it is based on the echo canceller being trained.

3.   **Claims 23-26,5,16,7,8,18,19,** rejected under 35 U.S.C. 103(a) as being unpatentable over

Nyhart (5553137) as applied to claims 1,12.

As per **claim 23,** it is rejected as per the claim 1 rejection, however Nyhart doesn't disclose the specifics of the terminal where the echo canceller is implemented.

It would have been obvious to one of ordinary skill in the art at the time of this application that an echo canceller could be implemented on a phone (which is also a conferencing device) or computer with a known interface (USB,1394) that produces the external audio signal for training for the purpose of removing echoes from those devices.

As per **claims 24-26,** they are rejected as per the claim 1 rejection.

As per **claims 5,16,** Nyhart discloses the audio training signal for the canceller which is digitally processed. As such, the system inherently comprises an analog-to-digital converter, which will sample the training audio in the same microphone input that receives the telephone signaling (for a conferencing application for example). The ADC inherently comprises a 'sample rate converter' which will resample any input signal into the preset sampling rate (which will be the same as the telephone signaling (conferencing application).

As per **claim 7,8,18,19,27,** examiner contends it would have been obvious to balance and manage the processor resources in a given system as necessary to perform the disclosed functions of communicating and echo cancelling.

4.   **Claims 6,17** rejected under 35 U.S.C. 103(a) as being unpatentable over Nyhart

(5553137) as applied to claims 1,12, and further in view of applicant's admitted prior art (spec).

        As per **claims 6,17,** Nyhart's system comprises a speaker, and mic (fig. 1), but

does not give specifics of the echo canceller.

        Applicant's admitted prior art discloses well known adaptive filters used to

perform the echo cancelling. The digital system inherently comprises means to delay all

signals paths so as to synchronize the signals (to give 'real time' bidirectional

communication.) (spec pages 1 and 2). It would have been obvious to one of ordinary

skill in the art at the time of this application to implement well known echo canceller

features like a filter and delay means for the purpose of implementing the disclosed

canceller.

        Additional set of rejections

                    Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

6.   **Claims 1-4,9-15,20-22,27** rejected under 35 U.S.C. 103(a) as being unpatentable over

applicant's admitted prior art (background section of spec), and further in view of Nyhart et al.

(5553137).

          As per **claims 1,12,** applicant's admitted prior art discloses known acoustic echo

     cancellers but does not disclose the specifics of a training technique to train on 'non-

     training' audio.

          Nyhart discloses an echo canceller training technique (Col 1 lines 21-40) that

     trains on 'non-training' audio that can be applied to any type of echo canceller system

     (Col 4 lines 20-30). The system inherently comprises an A/D sampler to sample the

     incoming microphone signal because the system is digital. However, Nyhart does not

     specify the sampling rate of the audio signal in relation to the audio of the telephone

     functions

          The examiner contends that it would have been obvious to one of ordinary skill in

     the art that any number of signaling frequencies could have been chosen for the telephone

     and audio signal used for training, or realize that the training could occur at a different

     clock rate than telephone signaling as a matter of design choice.

          As per **claim 10,** it is rejected as per **claim 1,** Nyhart discloses that the dialing

     tones (preset signals that are used to notify of an event unrelated to training that are also

     used for training) (Col 1 lines 45-60).

As per **claims 2,13**, they are rejected as per claim 1.

As per **claims 3,11,14,22,** it may be audio.

As per **claims 4,15,** examiner reads any device that processes audio with acoustic echoes as a computer, portable computer, and a phone.

As per **claims 9,20,** the examiner contends that any initialization stage for a communications device would inherently comprise and indication to the training portion as to when to start (a number of training calls being reached) for the purpose of telling the training when to start. Additionally the examiner contends that once the echo has been reduced to an acceptable threshold, the system inherently comprises a counter (clocking) in order to signal the rest of the system that the training has been completed. This counter would be adaptive, since it is based on the echo canceller being trained.

7.   **Claims 23-26,5,16,7,8,18,19,6,17** rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (background section of spec), in view of Nyhart (5553137) as applied to claims 1,12.

As per **claim 23,** it is rejected as per the claim 1 rejection, however Nyhart doesn't disclose the specifics of the terminal where the echo canceller is implemented.

It would have been obvious to one of ordinary skill in the art at the time of this application that an echo canceller could be implemented on a phone (which is also a conferencing device) or computer with a known interface (USB,1394) that produces the external audio signal for training for the purpose of removing echoes from those devices.

As per **claims 24-26,** they are rejected as per the claim 1 rejection.

As per **claims 5,16,** Nyhart discloses the audio training signal for the canceller which is digitally processed. As such, the system inherently comprises an analog-to-digital converter, which will sample the training audio in the same microphone input that receives the telephone signaling (for a conferencing application for example). The ADC inherently comprises a 'sample rate converter' which will resample any input signal into the preset sampling rate (which will be the same as the telephone signaling (conferencing application).

As per **claim 7,8,18,19,27,** examiner contends it would have been obvious to balance and manage the processor resources in a given system as necessary to perform the disclosed functions of communicating and echo cancelling.

As per **claims 6,17,** applicant's admitted prior art discloses well known adaptive filters used to perform the echo cancelling. The digital system inherently comprises means to delay all signals paths so as to synchronize the signals (to give 'real time' bidirectional communication.) (spec pages 1 and 2). It would have been obvious to one of ordinary skill in the art at the time of this application to implement well known echo canceller features like a filter and delay means for the purpose of implementing the disclosed canceller.

Response to Arguments

1.   Applicant's arguments have been fully considered but they are not persuasive.

As per applicant's comments concerning the sampling rate converters and the
analog to digital conversion stages. Applicant is claiming a sample rate conversion and
citing an advantage to converting sample rates, but does not disclose any implementation
details of the analog-to-digital conversion stages which would determine the initial
sampling rate of any signals being input from the microphone. How can applicant argue
that the claimed sample rate matching 'saves power' when there is no indication of the
initial power that the system would draw without the sample rate conversion ? Again,
applicant does not provide any details of the analog-digital conversion stages which
would determine the initial sampling rate of the incoming signals.

As per applicant's argument that the steps of matching the sampling rates is not
inherent to the two signals being used in an acoustic echo canceller, the examiner
disagrees. The adaptive filter and summing stage operate on a sample by sample basis.
One outgoing sample is processed by the filter so to be come an echo estimate sample,
which is then subtracted from one sample of the incoming microphone signal. The
samples must align, and every echo estimate sample must be subtracted from a
corresponding microphone input sample. Otherwise the echo canceller would not
function. There would be samples passing through to the other side without being echo
cancelled. This would destroy the intended purpose of any echo canceller and as such it

is inherent to any digital adaptive echo canceller. The 'power savings' mentioned by

applicant is the fact that one high rate signal is resampled to a lower rate signal which

allows the adaptive echo canceller to function at a lower clock rate, which Saves power.

However, this does not change the fact that the echo canceller must receive two signal at

the same sampling rate in order to function correctly. Applicant's claimed advantage of

matching sampling rates is an inherent feature of any digital echo canceller in a

bidirectional system.

   As per applicant's arguments that the cited prior art does not inherently

synchronize because the term 'synchronize' is not mentioned, the examiner contends that

any digital system, and all processes it performs must be synchronized. The examiner

again notes the 112 first paragraph rejection is maintained as applicant is still arguing that

synchronizing a system is not inherent. Each sample in a digital processing system must

be synchronized with each process being performed by said system. Otherwise there

would be no way to track the samples and the system would not function.

   As per applicant's comments that operating systems such as Microsoft Windows

operates in bursts. The examiner contends that this further alludes to the fact that delay

stages (buffers) are inherent to an adaptive bidirectional system in order to maintain the

required synchronization of the system. A digital echo canceller using two separate

streams of samples requires that the samples be aligned on a sampled by sample basis,

This requires delay on one stream to compensate for the processing stages operating on

the other stream. Additionally both stages require delay buffers in order to delay both

streams to compensate for the known burst operation of known operating systems such as

Microsoft Windows. Again, applicant is arguing that synchronizing a system is not an
inherent step to a digital processing system.

Applicant argues that the claimed buffers allow for processor load reduction. The
examiner contends that known burst processing will allow for processor load reduction
while the delay stages (buffers) are inherently required to synchronize the system.

As per applicant's comments that one skilled in the art would know how to utilize
'delay matching buffers', the examiner agrees because that **is** synchronizing the system,
which is **inherent to any digital system.**

As per applicant's arguments concerning processor load, applicant argues that one
skilled in the art would know to detect the processor load. However, applicant's claims
recite an average processor load. Since applicant has not provided all of the functional
blocks (not even the A/D and D/A stages !) or their respective processing delays, or the
tolerances or timing jitter or clocking interface, there is no way to determine what the
claimed 'average load threshold' would be.

As per applicant's arguments regarding the double-talk detection. As one skilled
in the art would know, there are certain talking conditions that can corrupt the estimate of
an echo estimation. The 'training' referred to by applicant is this same echo estimation.
Applicant's device, without taking into account the various talking conditions (near-end
only, far-end only, and near and far-end simultaneously) would not function to train the
echo canceller because certain talking conditions will corrupt the echo estimate and the
canceller will not be trained.

As per applicant's arguments concerning and 'entertainment' signal, applicant's specification only provides vague examples and does not clearly differentiate between an entertainment signal and any audio signal (training or otherwise), The cited examples do not serve to clearly define what an entertainment signal would be. The specification describes it as a 'high sampling rate' audio signal, but does not specify what a 'high sampling rate' is. Since there are no implementation details provided (such as the details of the A/D or D/A converters), it is not clear how to define these signal. The examiner suggests applicant remove the references to entertainment signal and simply refer to it as an audio signal, as that is how it is being read by the examiner.

As per applicant's further arguments concerning the average processor load, the examiner contends that applicant does not provide enough details to determine what a 'high' average processor load, or a 'low' average processor load would be.

As per applicant argument that the Nyhart reference does not disclose acoustic echo cancellation, the examiner notes that Nyhart discloses that the echo cancelling training technique could be used on any personal communications device that cancels near end reflected echo (Col 4 lines 15-25). The PCS device 104 in Fig 1 comprises an acoustic interface that would use an acoustic echo canceller, to which the disclosed technique is applied. Additionally, the examiner notes the additional set of rejections above.

As per applicant's request for an interview with the examiner, the applicant is invited to call or email the examiner to setup an interview.

As per applicant's argument that the examiner has not shown that applicant's admitted prior art teaches an adaptive filter, the examiner contends one skilled in the art would realize the well known structure of an adaptive echo canceller (weather acoustic or electric ((sidetone as referred to by Nyhart))). The examiner notes that applicant's specification give no implementation details as to the specific algorithms used, and the spec provides nothing more than block diagrams to show the claimed invention. The examiner contends that if it truly is not well known how the adaptive filters/synchronization of a digital echo cancellation are implemented, then applicant's specification and claims will be subject to additional 112 first paragraph enablement rejections.

As per applicant's argument that the 'sidetone' referred to in Nyhart is not echo, the examiner contends it **is** echo and again notes (Col 1 lines 18-21). The reflected signals at a 2-4 wire interface are echo. The fact that Nyhart refers to them as sidetone, does not change the fact that he is referring to echo.

As per applicant's argument that Nyhart does not use an 'entertainment sound adaptor' to output the sound. The examiner reads the means to output the dialing tones (which are also used as training signals in addition to the inter-digit noise) as an 'entertainment sound adaptor'. The examiner again notes that applicant's specification does not provide a clear definition of what an 'entertainment' sound is. The examiner has given the most reasonable broad reading of the term in view of applicant's unclear specification. Both applicant's device and the examiner's cited prior art use signals that were originally intended for uses other than training (in Nyhart's case it is the dialing

signals). Nyhart does not require PN noise generation while the dialing tones are being output.

As per applicant's argument that the examiner is using hindsight when saying that an echo canceller could be used in a phone or computer, the examiner notes that applicant's admitted prior art already discloses acoustic echo cancellers used by phones. Further, the examiner reads a phone as a computer and notes that applicant has not clearly defined any criteria to differentiate a computer from a digital phone. A computer is read as any device with a processor and all digital audio processing devices require a processor to control the hardware and synchronize the functions of the system.

As per applicant's argument that the claimed device would not need to train continuously, the examiner notes that no training is performed continuously. Training is performed until the system is trained and then does not occur anymore. In Nyhart's case, training is only performed during the dialing phase, which is not continuous. Examiner again notes that Nyhart uses both the dialing tone and generated noise to train the canceller. Nyhart's dialing means are used for two separate and distinct functions, one is to dial the phone, and the other is to train the canceller. The dialing signals of Nyhart can easily be used during a telecommunications application, such as when the user uses said dialing tones to signal a connect device (such as when reaching an automated message which requests the user press a button to indicate something to the connected device). The dialing tones have many uses and functions (in addition to canceller training) and the examiner reads these as 'entertainment audio' as reasonably defined in light of applicant's specification. The examiner notes that a user may press a combination of

dialing buttons to produce a musical melody at any time. This would also be considered 'entertainment audio'. Again, applicant has not clearly defined or differentiated entertainment audio from the dialing tones of the cited prior art.

As per applicant's arguments that dial tones are not streamed, the examiner notes that they are streamed for as long as a user pressed the button down.

As per applicant's arguments concerning balancing processing resources, the examiner maintains that applicant has not disclosed enough details to determine what a high or low processor load would be because not all of the processing stages are disclosed or described in detail. However, the examiner contends that it would have been obvious to one skilled in the art to manage processor resources in both applicant's device and the cited prior art as an inherent part of designing a digital system.

As per applicant's argument that Nyhart does not disclose the adaptive filter stage, the examiner maintains that applicant's admitted prior art discloses adaptive filters, and further that Nyhart's disclosed echo canceller inherently comprises an adaptive filter to perform the echo estimation inherent to echo cancellation.

As per applicant's arguments that Nyhart does not disclose the delay buffers, the examiner notes the 112 rejection above. Applicant is arguing about claim elements that are detailed in applicant's specification. Applicant has provided no details to enable the

specific implementation of an 'adaptive filter'. The examiner contends that an adaptive filter is a very well known stage that is inherent to all echo cancellers.

As per applicant's arguments that the examiner has not shown the counters of claim 9, the examiner reads the inherent clocks required to synchronize a system as counters. Further, they are adaptive because the system detects when the dialing has begin (in order to start training), so the counters (clocks) will be used by the training functions of the echo canceller.

As per applicant's arguments that Nyhart does not disclose a sequence of frequencies and an event unrelated to training, the examiner contends that the dialing tones are used for training and they are 'unrelated to training' and they can be read as 'entertainment' as noted above.

Whew !

2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Jamal whose telephone number is 571-272-7498, and whose email address is alexander.jamal@uspto.gov

The examiner can usually be reached on M-F 8AM-5PM.
If attempts to reach the examiner by telephone or email are unsuccessful, the examiner's supervisor, Curtis A Kuntz can be reached on 571-272-7499.

The fax phone numbers for the organization where this application or proceeding is assigned are **571-273-8300** for regular communications and **571-273-8300** for After Final communications.

/Alexander Jamal/

Primary Examiner, Art Unit 2614

Examiner Alexander Jamal

May 7, 2009